

Notice of Allowability

Application No.

10/575,820

Examiner

Joseph W. Drodge

Applicant(s)

BENESI, STEVE C.

Art Unit

1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the Amendment filed on 10/22/2009.
2. ☒ The allowed claim(s) is/are 1 and 3-21.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.
- Identifying Indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date ____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date 20091105.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other ____.

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with George Wasson on November 5, 2009.

The claims have been amended as follows:

1. (Currently amended) A slurry filtration system for batch processing of a slurry to separate slurry liquids from slurry solids including in combination:

a) a pressure filter apparatus comprising at least one upper plate with an internal cavity, at least one lower plate with an internal cavity, and a filter media, said upper and lower plates adapted to close and seal against each other mating said internal cavities to form a sealable pressurizable filtration chamber with said filter media between said sealed plates, means for opening and closing said filtration chamber by moving said plates with respect to each other, means for moving said filter media through the formed filtration chamber when said plates are open, means for introducing a batch of slurry, fluids and gases into said pressurized filtration chamber when said plates are closed, means for withdrawing fluids and gases from

said chamber through said filter media and retaining slurry solids as a filter cake on said filter media within said internal cavities of said filtration chamber;

b) a source of slurry to be filtered, means connecting said source of slurry to said means for introducing fluids into said filtration chamber and introducing a batch of said slurry to fill said filtration chamber;

c) a plurality of means for performing pretreatment procedures on said slurry prior to introducing said slurry batch into said filtration chamber;

d) means for analyzing characteristics of said slurry including at least temperature, ~~chemical characteristics~~ pH and viscosity;

e) means for sensing temperature and pressure within said filtration chamber when said plates are closed and when said slurry batch has been introduced;

f) and a controller means for receiving information representing said analyzed characteristics and said sensed temperature and pressure, said controller including

i) means for controlling said means for performing pretreatment procedures on said slurry,

ii) means for controlling opening and closing of said plates,

iii) means for moving said filter media;

iv) and means for controlling said means for introducing fluids and gases and withdrawing fluids from said slurry batch as filtrate and forming a filter cake within said filtration chamber, and

g) said plurality of means for performing pretreatment procedures on said slurry prior to introduction of said slurry batch into said filtration chamber additionally being controlled by said controller and comprising

i) a source of heat for controlling said slurry temperature,

ii) a source and means for adjusting ~~chemical characteristics of said slurry including means for adjusting~~ said slurry in pH,

iii) a source and means for introducing coagulant materials to said slurry,

iv) at least one source and means for introducing polymer materials to said slurry, and

v) at least one mixing means for mixing of said slurry and said sources ~~after~~ during performing said pretreatment procedures to produce a treated and conditioned slurry for batch introduction into said filtration chamber, and

~~h) each of said plurality of sources and means and said mixing means being controlled by said controller,~~

h) whereby a batch of slurry can be analyzed, adjusted, mixed, introduced into said pressure filter apparatus and then efficiently separated into liquids and solids.

16. (Currently Amended) A method for operating a pressure filter apparatus system for separating liquids from solids in a slurry stream comprising the steps of:

- a) analyzing the ~~characteristics~~ pH, temperature and viscosity of said slurry,
- b) controlling the temperature, ~~chemical characteristics~~ pH and viscosity of said slurry,
- c) pretreating said slurry by adding and mixing materials to said slurry to coagulate, or flocculate ~~or precipitate~~ solid materials in said slurry and to produce a treated slurry,
- d) introducing a portion of said slurry stream of treated slurry into a closed, sealed and pressurizable filtration chamber in a pressure filter system, said filtration chamber including a filter media and support porous means adapted to pass liquids of said slurry while retaining solids from said slurry on said filter media,
- e) after introducing said portion of said slurry stream, introducing slurry treating fluids and gases to said filtration chamber to pressurize said filtration chamber, said treating fluids and gases including wash fluids, liquid clearing or cake forming gases, steam, or drying or conditioning gas introduced to said chamber to initiate separation of liquids from said slurry and to form a filter cake of solids on said filter media,
- f) controlling said pressure within said filtration chamber to facilitate passage of said introduced fluids and gases through said filter cake,

g) controlling the pressure within said filtration chamber to prepare for repeat venting or opening of said filtration chamber,

h) opening said filtration chamber and moving said filter media to permit said filter media to carry said filter cake from said filtration chamber,

i) ~~and~~ closing said filtration chamber and repeating said steps of a) through h) for repeated processing of additional portions of said slurry stream,

j) sensing temperature and pressure within said filtration chamber when said plates are closed and when an individual batch of said slurry has been introduced into said filtration chamber; and

k) providing a controller for receiving information from each of said analyzing and sensing steps and for controlling each of said pretreating, pressure controlling, introducing, and filter media moving, opening and closing steps.

17. (Currently amended) The method of claim 16 wherein ~~each of said steps is performed under control by a said controller~~ comprises having preprogrammed operating procedures and feedback information for operating ~~from~~ each of said controlling steps; ~~said controller adapted to control said pretreating slurry steps and said steps of introducing slurry treating fluids and gases for treating said slurry within said pressurized filtration chamber.~~

18. (Currently amended) The method of claim 16 wherein said heating of said slurry stream is accomplished with recycle heat from within said ~~filter assembly~~ filtration chamber, from recompression of gases or fluids used in said method, and/or from external sources associated with said filter system.

The following is an examiner's statement of reasons for allowance: The claims have now been amended to mitigate remaining 35 U.S.C. 112, 2nd paragraph problems and more clearly distinguish over the applied prior art of record. Independent claims 1 and 16 now distinguish at least for recitations of a controller means receiving information from both a means for analyzing characteristics of the slurry (understood to include a combination of sensors) and means for sensing temperature and pressure within the filtration chamber with plates closed and slurry batch introduced in combination with the controller including means for (or 'for controlling') pre-treating, pressure-controlling, introducing, and filter media moving, opening and closing steps. While the Benesi patents cumulatively teach a controller for controlling all steps of operation of a pressurized filter assembly and Thogho and Conley suggest controlling of slurry conditioning and pre-treatment processes upstream of pressure filtration; none of the prior art teaches or suggests a single, comprehensive control means for combining monitoring and control of the slurry conditioning pre-treatment processes with the various pressurized filtration process

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steps. Support for the claim amendments in this Examiners Amendment are found in the Specification at page 3, lines 11-13; page 4, lines 14-22 and page 6, lines 1-9 with Figure 2.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

JWD

11/6/2009

/Joseph W. Drodge/

Primary Examiner, Art Unit 1797